

What is claimed is:

1. An implantable device for delivering cardiac function therapy to a patient, comprising:
  - 5 a plurality of pacing channels for delivering pacing pulses to multiple ventricular sites;
  - a parasympathetic stimulation channel for stimulating parasympathetic nerves innervating the heart; and,
  - a controller for controlling the delivery of pacing pulses to the multiple
  - 10 ventricular sites during a cardiac cycle in accordance with a programmed pacing mode;
  - wherein the controller is programmed to deliver multi-site ventricular pacing therapy in conjunction with parasympathetic stimulation for reducing ventricular wall stress.
- 15 2. The device of claim 1 further comprising a sensor for measuring cardiac output and wherein the controller is programmed to modulate the delivery of parasympathetic stimulation in accordance with the measured cardiac output.
3. The device of claim 2 wherein the cardiac output sensor is a trans-thoracic
- 20 impedance measuring circuit.
4. The device of claim 2 wherein the controller is programmed to deliver parasympathetic stimulation only when cardiac output is above a specified limit value.
- 25 5. The device of claim 1 further comprising an exertion level sensor for measuring the patient's exertion level and wherein the controller is programmed to modulate the delivery of parasympathetic stimulation in accordance with the measured exertion level.

6. The device of claim 5 wherein the controller is programmed to deliver parasympathetic stimulation only when the measured exertion level is below a specified limit value.

5 7. The device of claim 1 further comprising:  
an exertion level sensor for measuring the patient's exertion level;  
a sensor for measuring cardiac output; and,  
wherein the controller is programmed to modulate the delivery of  
parasympathetic stimulation in accordance with the measured exertion level and  
10 measured cardiac output.

8. The device of claim 7 wherein the controller is programmed to deliver parasympathetic stimulation only when a computed function of the currently measured cardiac output and exertion level indicates that cardiac output is adequate.

15

9. The device of claim 5 wherein the exertion level sensor is a minute ventilation sensor.

10. The device of claim 5 wherein the exertion level sensor is an accelerometer.

20

11. A method for operating an implantable cardiac device for delivering pacing therapy to a patient, comprising:

delivering pacing pulses to multiple ventricular sites during a cardiac cycle in accordance with a programmed pacing mode; and,

25 stimulating parasympathetic nerves innervating the heart in order to reduce ventricular wall stress.

12. The method of claim 11 further comprising measuring cardiac output and modulating the delivery of parasympathetic stimulation in accordance with the  
30 measured cardiac output.

13. The method of claim 12 further comprising measuring cardiac output sensor by measuring trans-thoracic impedance.

5 14. The method of claim 12 further comprising delivering parasympathetic stimulation only when cardiac output is above a specified limit value.

15. The method of claim 11 further comprising measuring the patient's exertion level and modulating the delivery of parasympathetic stimulation in accordance with  
10 the measured exertion level.

16. The method of claim 15 further comprising delivering parasympathetic stimulation only when the measured exertion level is below a specified limit value.

15 17. The method of claim 11 further comprising:  
measuring the patient's exertion level;  
measuring cardiac output; and,  
modulating the delivery of parasympathetic stimulation in accordance with the  
measured exertion level and measured cardiac output.

20

18. The method of claim 17 further comprising delivering parasympathetic stimulation only when a computed function of the currently measured cardiac output and exertion level indicates that cardiac output is adequate.

25 19. The method of claim 15 further comprising measuring the exertion level by measuring minute ventilation.

20. The method of claim 15 further comprising measuring the exertion level by measuring body acceleration.